Determinasi Kandungan pada Campuran Lemak Babi dengan Sapi menggunakan Spektroskopi Inframerah Dekat dan Partial Least Square Regression

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Abstract

Fat is one of important elements for human's body. Therefore, fat is often added as one of main ingredients both in food industry activity and in cosmetic products. In this study, another technique was done to make an assumption about the content of fat by using Near Infrared Spectroscopy, NIRS and it was followed by Partial Least Square Regression, PLSR. This assumption was done by making 21 samples with the pork fat percentage toward the cow fat (w/w), which was 0,00, 0,05 until 1,00 with the interval of 0,05. This calibration model was developed using 11 samples of even concentrate and it was validated by using 10 samples of odd concentrate. The infra-red spectrum used in this study was around 4.000-10.000 cm^{-1}. Prior data treatment covered smoothing, normalizing, the first, and the second derivative which were used to optimized the developed PLSR-NIRS prediction models. The second descending spectrum was used to increase the spectrum resolution before PLS analysis was done. Overall, the NIRS and PLSR techniques were sucessful in showing the percentage of the content in the mixted samples of pork and cow fat.

Keywords: Fat, NIRS, PLSR.